

**ELECTRICALLY CONTROLLED IN-MUFFLER EXHAUST
VALVE FOR USE DURING CYLINDER DEACTIVATION**

ABSTRACT OF THE DISCLOSURE

A powertrain control system is provided that includes an engine having multiple cylinders. A controller selectively activates the cylinders to provide a cylinder combination having a desired power displacement. In one example powertrain control system, the controller selectively activates the cylinders between a V-8 and V-4 mode. An exhaust system having a valve and an electrical actuator selectively electrically actuates the valve in response to the controller between multiple positions. The electrical actuator moves the valve from an open position in V-8 mode to a partially closed position in V-4 mode to increase back pressure and reduce NVH issues in V-4 mode. A muffler includes a housing having an exhaust passage. The valve is supported by the housing and arranged in the exhaust passage. The valve is moveable between multiple positions for tuning the muffler. The electrical actuator is supported by the housing to actuate the valve between the multiple positions.